CLAIMS

1. Method of optimising the size of coded data blocks intended to be subjected to iterative decoding, characterised in that, a maximum error rate at the output of the iterative decoding being fixed in advance, the method seeks, amongst a plurality of block sizes (N/k) which are submultiples of the normal block size by an integer factor (k) greater than or equal to 1 and a plurality of integers giving the maximum number of iterations ($n_{iterations}^{(k)}$) which can be effected by the said iterative decoding on a block, a submultiple size and a maximum number of iterations such that they are compatible with the said maximum error rate and such that a mean number of iterations ($\overline{n}_{iterations}^{(k)}$) which would be effected by the iterative decoding on a submultiple sized block is as low as possible.

2. Optimisation method according to Claim 1, characterised in that, for a size which is a multiple by a given factor k and a given maximum number of iterations ($n_{iterations}^{(k)}$), the said mean number of iterations ($\overline{n}_{iterations}^{(k)}$) is determined as a function of the signal to noise ratio as the mean value of the number of iterations which would be effected by the iterative decoding for each block in a succession of blocks of submultiple size, the iterations being stopped if the block of submultiple size satisfies a predetermined reliability criterion or if the number of iterations for this block attains the said given maximum number of iterations.

3. Optimisation method according to Claim 1 or 2, characterised in that said mean numbers of iterations for different submultiple sizes, different maximum numbers of iterations and different signal to noise ratios are stored in a table.

4. Optimisation method according to Claim 3, characterised in that the table is updated as the iterative decoding continues.

5. Optimisation method according to Claim 3 or 4, characterised in that the mean numbers of iterations are obtained by interpolation from values available in the table.

6. Optimisation method according to one of the preceding claims, characterised in that the search is limited to the integers which have a value higher than a predetermined value (k_{min}).

7. Optimisation method according to one of the preceding claims, characterised in that, prior to the search, it determines the maximum number of iterations ($n_{iterations}^{(1)}$) for a block of normal size, compatible with a predetermined maximum decoding time, and in that the search amongst said plurality of submultiple block sizes (N/k) and said plurality of integers is limited to the values such that the mean number of iterations ($\bar{n}_{iterations}^{(k)}$) which would be effected by the iterative decoding on a block of submultiple size is less than said maximum number of iterations ($n_{iterations}^{(1)}$).

8. Method for the iterative decoding of coded data blocks, the blocks having an initial size, characterised in that an optimum block size and a maximum number of iterations associated with this size are determined by means of the optimisation method according to one of the preceding claims and in that, the data of a block of initial size having been coded as a sequence of sub-blocks of optimum size, the sub-blocks are decoded, one by one, by a succession of iterations of the iterative decoding, the iterations being stopped for a sub-block if a predetermined reliability criterion is satisfied or if the number of iterations attains the said maximum number of iterations associated with the said optimum size.

9. Method for the iterative decoding of coded data blocks, the blocks having an initial size, characterised in that an optimum block size and a maximum number of iterations associated with this size are determined by means of the optimisation method according to one of the preceding claims and in that, the data of a block of initial size having been coded as a sequence of sub-blocks of optimum size, the sub-blocks are decoded by successively effecting, on each sub-block, an iteration of the iterative decoding, an iteration not being effected for a sub-block if a predetermined reliability criterion is satisfied or if the number of iterations reaches the maximum number of iterations associated with the said optimum size.

10. Device for the iterative decoding of blocks of data coded by a turbocoder, characterised in that it has means for implementing the optimisation method according

to one of Claims 1 to 7, the said means supplying an optimum block size and a maximum number of iterations per block of optimum size, the device also comprising means for transmitting optimum block size information to the turbocoder.

11. Coding/decoding system comprising a turbocoder adapted to code blocks of data and an iterative decoding device according to Claim 10 adapted to decode the blocks of data coded by the turbocoder, the latter comprising means for receiving the said optimum block size information and for modifying the size of at least one internal interleaver according to the said information received.

12. Device for coding blocks of data, characterised in that it has means for implementing the optimisation method according to one of Claims 1 to 7, the said means supplying an optimum block size, the device also comprising means for adaptively modifying the size of the coded data blocks according to the said optimum block size.

13. Device for the turboequalisation of blocks of data coded by a coder and modulated, characterised in that it has means for implementing the optimisation method according to one of Claims 1 to 7, the said means supplying an optimum block size, the device also comprising means for transmitting optimum block size information to the coder.